

City University of Hong Kong
Course Syllabus

offered by Department of Economics and Finance
with effect from Semester A 2024 /25

Part I Course Overview

Course Title:	Quantitative Methods in Economics
Course Code:	EF8079
Course Duration:	1 semester
Credit Units:	3
Level:	R8
Medium of Instruction:	English
Medium of Assessment:	English
Prerequisites: <i>(Course Code and Title)</i>	EF5470 Econometrics EF8070 Advanced Microeconomics EF8072 Advanced Macroeconomics
Precursors: <i>(Course Code and Title)</i>	Nil
Equivalent Courses: <i>(Course Code and Title)</i>	EF5474 Quantitative Methods in Economics
Exclusive Courses: <i>(Course Code and Title)</i>	Nil

Part II Course Details

1. Abstract

This course aims at providing computational, analytical, and empirical tools to graduate students to manipulate and analyse big data by using SAS. Particularly, this course trains students to apply these tools to economics and financial applications such as portfolio choices, asset pricing, income and consumption inequality, and human capital risk by using large global and local datasets. This course equips students to have computational, numerical, and analytical skills to solve real-life business problems and to do literature search and modern economics research

This course also aims to develop student's discovery abilities through problem solving and encourage students to do business and research work. Especially on literature search.

2. Course Intended Learning Outcomes (CILOs)

No.	CILOs	Weighting (if applicable)	Discovery-enriched curriculum related learning outcomes		
			A1	A2	A3
1.	ability to work with big datasets by using SAS	-	✓	✓	
2.	understand the basic concepts in portfolio choices, asset pricing theory, inequality, and income risks	-	✓	✓	
3.	apply all tools to analyse and understand economics and financial applications	-	✓	✓	✓
4.	deploy tools to explain observed economics or financial problems.	-	✓	✓	✓
5.	literature search	-	✓	✓	✓
		-			

A1: Attitude

Develop an attitude of discovery/innovation/creativity, as demonstrated by students possessing a strong sense of curiosity, asking questions actively, challenging assumptions or engaging in inquiry together with teachers.

A2: Ability

Develop the ability/skill needed to discover/innovate/create, as demonstrated by students possessing critical thinking skills to assess ideas, acquiring research skills, synthesizing knowledge across disciplines or applying academic knowledge to self-life problems.

A3: Accomplishments

Demonstrate accomplishment of discovery/innovation/creativity through producing /constructing creative works/new artefacts, effective solutions to real-life problems or new processes.

3. Learning and Teaching Activities (LTAs)

LTA	Brief Description	CILO No.					Hours/week (if applicable)
		1	2	3	4	5	
Lectures	The lectures cover introductory SAS, work with large datasets by using SAS, study fundamental concepts in portfolio choices, asset pricing, inequality, and human capital.	✓	✓	✓	✓	✓	
Assignments	Homework assignments help students to understand computational and programming skills and to apply these skills to economics and finance applications.	✓	✓	✓	✓	✓	
Project	Each student writes an individual project. The topic for the project can be any economics or financial questions.	✓	✓	✓	✓	✓	

4. Assessment Tasks/Activities (ATs)

Assessment Tasks/Activities	CILO No.					Weighting	Remarks
	1	2	3	4	5		
Continuous Assessment: 100 %							
Homework assignments	✓	✓	✓	✓	✓	50%	
Project	✓	✓	✓	✓	✓	50%	
Examination: 0 % (duration: , if applicable)							
-						0%	
						100%	

5. Assessment Rubrics

Applicable to students admitted before Semester A 2022/23 and in Semester A 2024/25 & thereafter

Assessment Task	Criterion	Excellent (A+, A, A-)	Good (B+, B, B-)	Fair (C+, C, C-)	Marginal (D)	Failure (F)
1. Homework		Strong evidence of original thinking; good organization, capacity to analyse and synthesize; superior grasp of subject matter; evidence of extensive knowledge base.	Evidence of grasp of subject, some evidence of critical capacity and analytic ability; reasonable understanding of issues; evidence of familiarity with literature.	Student who is profiting from the university experience; understanding of the subject; ability to develop solutions to simple problems in the material.	Sufficient familiarity with the subject matter to enable the student to progress without repeating the course.	Little evidence of familiarity with the subject matter; weakness in critical and analytic skills; limited, or irrelevant use of literature.
2. Project						

Applicable to students admitted from Semester A 2022/23 to Summer Term 2024

Assessment Task	Criterion	Excellent (A+, A, A-)	Good (B+, B)	Marginal (B-, C+, C)	Failure (F)
1. Homework		Strong evidence of original thinking; good organization, capacity to analyse and synthesize; superior grasp of subject matter; evidence of extensive knowledge base.	Evidence of grasp of subject, some evidence of critical capacity and analytic ability; reasonable understanding of issues; evidence of familiarity with literature.	Sufficient familiarity with the subject matter to enable the student to progress without repeating the course.	Little evidence of familiarity with the subject matter; weakness in critical and analytic skills; limited, or irrelevant use of literature.
2. Project					

Part III Other Information

1. Keyword Syllabus

SAS, big dataset, panel data, cross-sectional data, portfolio choices, asset pricing, income risk, inequality, consumption-based models, overlapping generations models, heterogeneous agent models, numerical optimization, and numerical integral.

2. Reading List

2.1 Compulsory Readings

1.	Using SAS in Financial Research by Ekkehart Boehmer
2.	Asset Pricing by John Cochrane
3.	Applied Computational Economics and Finance by M. J. Miranda and P. L. Fackler

2.2 Additional Readings

1.	The Econometrics of Financial Markets by J. Campbell, A. W. Lo, and A. C. MacKinlay
2.	Numerical Methods in Economics by Kenneth L. Judd
3.	Dynamic Economics: Quantitative Methods and Applications by J. Adda and R. W. Cooper
4.	Computational Methods for Study of Dynamic Economics by R. Marimon and A. Scott
5.	Dynamic General Equilibrium Modelling: Computational Methods and Applications by B. Heer and A. Maussner